

REMARKS

In the last Office Action, the Examiner objected to the claims because the marked-up copy of the amendments to claims 3 and 6 does not conform to the smooth copy of these claims. Claim 7 was rejected under 35 U.S.C. §112, second paragraph, for indefiniteness. Claims 1, 2, 5-10, 13 and 14 were rejected under 35 U.S.C. §102(b) as being anticipated by Fujieda et al. Claims 3 and 11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fujieda et al. and further in view of Kramer et al. Claims 4 and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fujieda et al. and further in view of Holehan. Additional art was cited of interest.

In accordance with the present response, independent claims 1 and 7 have been amended to incorporate the subject matter of dependent claims 3 and 11, respectively, which have been canceled. Claim 7 has been further amended to overcome the indefiniteness rejection by providing antecedent basis for the "contact surface" of the transparent plate.

Submitted herewith are corrected marked-up copies of amended claims 3 and 6 submitted in the preliminary amendment filed December 23, 2002 and correctly showing the additions and deletions made to claims 3 and 6 as originally filed. As set forth above, the subject matter of claims 3 and 6, as

amended by the preliminary amendment, has been incorporated into independent claims 1 and 7, respectively.

Submitted herewith is a replacement sheet for Fig. 5 incorporating a revision to provide a lead line identifying the angle of incidence of light θ_i .

In view of the foregoing, applicant respectfully submits that the objection to claims 3, 6 and the rejection of claim 7 under 35 U.S.C. §112, second paragraph, have been overcome and should be withdrawn.

Applicant requests reconsideration of his application in light of the following discussion.

Independent claim 1 has been amended to incorporate the subject matter of claim 3. With reference to the embodiment shown in Figs. 1, 2 and 7, amended independent claim 1 is directed to an apparatus for implementing readout of a fingerprint and requires a transparent upper base plate 1 having a contact surface that is touched during use by a fingertip 7 of a person, a light source 3 for irradiating the contact surface with light such that a portion of the light is reflected when the fingertip 7 touches the contact surface, an equal magnification lens 4 for forming an image of the person's fingerprint based on the reflected light with equal magnification, an image sensor 5 having an image pickup surface 8 comprised of a plurality of photoreceptors linearly

disposed thereon for detecting the image of the fingerprint. The photoreceptors of the image pickup surface 8 are arranged in rows, and a length of the respective rows is more than ten times larger than a length of columns of the photoreceptors. A lower base plate 6 supports the image sensor 5 in a fixed position relative to the equal magnification lens 4. A housing 1 houses the transparent base plate 2, the light source 3, the equal magnification lens 4, and the upper and lower base plates 1, 6.

The prior art of record does not disclose or suggest the structural combination of the apparatus for implementing readout of a fingerprint recited in amended independent claim 1. For example, Fujieda et al. disclose an image input apparatus incorporated in a fingerprint collation system of personal identification. Kramer et al. discloses a scanning capacitive semiconductor fingerprint detector. Holehan discloses a computer system with an integratable touchpad/security subsystem. As recognized by the Examiner, the combined teachings of these references do not disclose or suggest an image sensor having an image pickup surface comprised of a plurality of photoreceptors linearly disposed thereon for detecting the image of a fingerprint, the photoreceptors being arranged in rows, and a length of the respective rows being more than ten times larger than a length

of columns of the photoreceptors, as recited in amended independent claim 1.

With respect to the specific arrangement of the photoreceptors and the specific dimensional relationship between the lengths of the respective rows and columns of the photoreceptors recited in amended claim 1, the Examiner has relied upon Kramer which discloses an array of capacitive elements having a first dimension greater than the width of a fingerprint and a second dimension less than the length of a fingerprint. The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange photoreceptors in rows having a length more than ten times larger than a length of columns of the photoreceptors because the lengths disclosed by Kramer and the specific dimensional relationship between the lengths of the respective rows and columns of the photoreceptors recited in amended claim 1 are functional equivalents. Applicant respectfully traverse this contention and conclusion of obviousness.

In holding that the mere existence of functional equivalence does not establish obviousness, the court in In re Scott, 139 USPQ 297, stated:

We disagree with the supposed logic of the Patent Office position. The examiner and the board appear to hold that the mere existence of "functional and mechanical equivalence" establishes "obviousness."

Expedients which are functionally equivalent to each other are not necessarily obvious in view of one another. The statutory mandate of 35 U.S.C. 103 is that the claimed subject matter be unobvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. 139 USPQ 297, 299.

Moreover, the Court in In re Flint, 141 USPQ 299 (CCPA 1964), and In re Edge, 149 USPQ 556, 557 (CCPA 1966), considered the holding in In re Scott dispositive in also holding that the mere existence of functional equivalence does not establish obviousness.

In the instant case, there is no basis for the Examiner's holding that the lengths disclosed by Kramer are the functional equivalent of the specific dimensional relationship between the lengths of the respective rows and columns of the photoreceptors recited in amended claim 1. Thus such equivalence between the lengths disclosed by Kramer and the specific dimensional relationship between the lengths of the respective rows and columns of the photoreceptors recited in amended claim 1 propounded by the Examiner is not obvious and the Examiner has cited no evidence that the prior art recognized the two dimensional relationships to be functionally equivalents. See, Ex parte Panagrossi et al., 288 USPQ 287, 288 (Bd. App. 1960).

Independent claim 7 has been amended to incorporate the subject matter of claim 11 and requires an image sensor disposed in the housing to receive the reflected light and having a plurality of linearly-arranged photosensors arranged in a plurality of rows, a length of the respective rows being more than ten times larger than a length of columns of the photosensors. No corresponding feature is disclosed or suggested by the prior art of record as set forth above for amended independent claim 1.

Claims 2, 4-6 and 8-10, 12-14 depend on and contain all of the limitations of amended independent claims 1 and 7, respectively, and, therefore, distinguish from the references at least in the same manner as claims 1 and 7.

In view of the foregoing amendments and discussion,
the application is believed to be in allowable form.
Accordingly, favorable reconsideration and allowance of the
claims are most respectfully requested.

Respectfully submitted,
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MAILING CERTIFICATE

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: MS FEE AMENDMENT, COMMISSIONER FOR PATENTS, P.O. Box 1450, Alexandria, VA 22313-1450, on the date indicated below.

Debra Buonincontri

Name



Signature

April 20, 2005

Date

IN THE DRAWINGS:

Submitted herewith is a replacement sheet for Fig. 5 incorporating a revision to provide a lead line identifying the angle of incidence of light θ_i .

CORRECTED MARKED-UP COPIES OF CLAIMS 3 AND 6

3. An apparatus for implementing readout of a fingerprint according to ~~elaim 1, wherein in~~ claim 1; wherein the image pickup surface of the image sensor, ~~a transverse length X corresponding to the row~~ sensor has a plurality of the respective rows, and a length of the respective rows is more than ten times larger than a ~~longitudinal length Y~~ corresponding to the column length of columns of the photoreceptors.

6. An apparatus for implementing readout of a fingerprint according to ~~elaim 1, wherein~~ claim 1; wherein the angle of incidence of the light irradiated by the light source onto the contact surface is smaller than or light with respect to the fingerprint, is approximately equal to the angle of reflection of the reflected light ~~with respect to the fingerprint forming the image on the image pickup surface of the image sensor, or the angle of incidence is smaller than the angle of reflection.~~